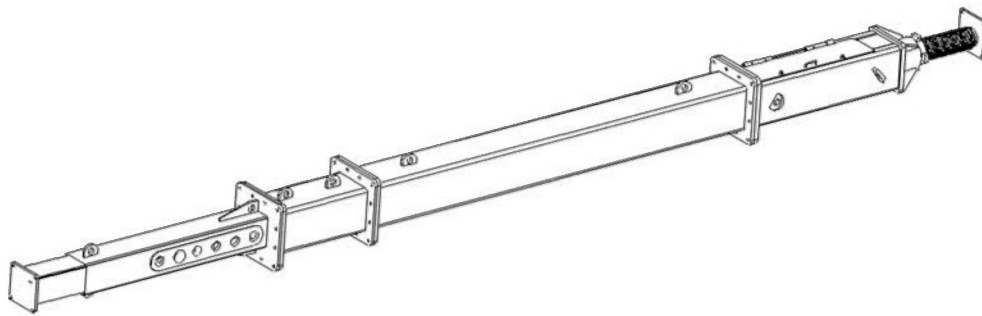


## Contents

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Page 5	: Identification of Components
Page 6	: Identification of Components Cont'd, Stacking and Handling, Transportation
Page 7	: Table of Standard Strut Assemblies
Page 8 - 9	: Connections
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Page 11	: Installation, Precautions During Use
Page 12	: Removal, Mechanical Pump Details and use of Hydraulic Ram
Page 13	: Maintenance, General
Appendix A	: Provision of a Mabey Hire Site Demonstrator



## 1. Introduction

Mabey Hire's Super Bracing Strut is intended for use in horizontal strutting, knee brace and raking prop applications. Standard components are designed to be used in conjunction with the Super Shaftbrace and Supershaft Plus waling systems.

This booklet provides basic information about the strut and should be read in conjunction with the user information for the Super Shaftbrace or Supershaft Plus systems if required. The struts are not intended for other applications.

For details of other bracing struts within Mabey Hire's range, refer to the appropriate set of user information.

Refer to Appendix A for details of our site demonstrator service.

## 2. Design

No information on design is included in this booklet. Clients are strongly advised to ensure that a competent engineer is employed to provide a suitable design for excavation schemes requiring the use of bracing struts.

Mabey Hire offer a design service and can on request also provide information on the strength capacities of the Super Bracing Strut for clients undertaking their own designs.

## 3. Strut Adjustment (See Section 12 for further details)

The strut incorporates two methods of adjustment:-

- The Mechanical Unit offers coarse adjustment by means of a pin, and has an overall length of 2000mm min to 3000mm max.
- The Hydraulic Unit incorporates a mechanical screw for fine length adjustment and has an overall length of 2000mm min to 2600mm max. A hydraulic ram can be fitted into the unit to aid removal of the strut if required.

## 4. General Guidance Notes

### 4.1 Safe System of Work and Method Statement

Assuming that the location, plan size and depth of an excavation, together with an arrangement of sheets and frames has already been determined, the Health and Safety at Work Act requires that a safe system of work is adopted to carry out the work on site.

These guidance notes are intended to draw the client's attention to practical aspects of Super Bracing Strut installation which need to be considered in drawing up method statements for a safe system of work.

In particular, the client's attention is drawn to the lengths and weights of the strut members and the need for planning the lifting operations involved.

All major components of the Super Bracing Strut system are fitted with lifting lugs for safe slinging.

Regular users of Mabey Hire's JC40, Light and Standard Mechanical Bracing Strut systems should note that Super Bracing Strut system components are considerably heavier and generally longer.

### 4.2 Manpower

The Health and Safety legislation requires that personnel deployed are suitably trained and experienced and supervised by a competent person.

The main activities associated with Super Bracing Strut installation are:

- Unloading the delivery vehicle.
- Bolting up and pinning steelwork together to form struts of the required length.
- Slinging and lifting struts into position in the excavation, and connecting the strut ends onto walings.

### 4.3 Plant and Lifting

A suitable appliance is required for off-loading and installation. For off-loading there needs to be sufficient clearance under the main hook to allow lifting with a safe angle between the lifting sling legs.

**WARNING:** If an excavator is being used for lifting operations refer to safety information on Page 4.

If the struts are to be lifted into the excavation then the appliance should be located a safe distance from the edge of the excavation and the lifts and radii checked against the safe lifting capacities of the appliance.

A surcharge for the excavator must have been allowed for in the excavation brief / design. Struts should be lifted into the excavation one at a time. Likewise for removal struts should be removed one at a time.

### 4.4 Small Plant, Tools and Lifting Chains for Handling

Essential equipment requirements are:

- A compressor with 100 p.s.i. output and sufficient length of air line to power the pump. The pump is fitted with a standard 1/2" BSP air hose claw connector.
- Sledgehammers for making pinned connections.
- Podgers / spanners for making bolted connections. (Bolt sizes are M20 and M24).
- Lifting chains of suitable length and capacity and with current certification. The struts have lifting lugs designed to take 13mm safety hooks.
- Ladders and possibly other provisions to provide safe access into the excavation to connect pump hoses.

In most cases the centre of gravity of the lifts involved will not be at mid-length so shortening clutches are advisable. Mabey Hire have a range of 2 and 4 leg chain slings available for hire. Clients should check that the leg lengths of the chain is suitable to use with their lifting appliance.

### 4.5 Access Hard Standing Areas and Site Storage

These include:

- Suitable area to off-load the lorry and assemble the struts.
- Suitable hard standings for the lifting appliance to operate from if it is intended to lift the struts into the excavation.



## 4.6 During Excavation Works on Site

If Mabey Hire have designed the sheeting and frame arrangement for the excavation they will have used ground data provided by the client.

If during the excavation it is noted that the actual ground conditions and/or ground water levels differ from those provided at design stage it is advisable to have the scheme rechecked.

## 4.7 After Excavation Works are Completed

Plan for edge protection to be installed as early as possible. Regularly inspect the excavation for signs of excessive movements of sheets or walings. Check the hydraulic walings for signs of fluid leakage.

Keep plant, spoil heaps and stored materials well clear from the edge of the excavation.

## 4.8 Return of Equipment Off Hire

Clients should ensure that on removal, the equipment is returned clean in lengths as supplied.

## 4.9 Transportation

Ensure all equipment is loaded to the satisfaction of the lorry driver and is securely chained/strapped to the lorry.

## 4.10 References

### 4.10.1 Legislation

The Health & Safety at Work Act 1974

The Management of Health and Safety at Work Regs (M.H.S.W.) 1999

The Construction (Design and Management ) Regulations 2007

The Control of Substances Hazardous to Health (COSHH) Regulations 1994

The Lifting Operations and Lifting Equipment Regulations (LOLER) 1998

The Provision and Use of Work Equipment Regulations (PUWER) 1998

Work at Height Regulations 2005

Noise

Manual Handling

### 4.10.2 HSE Guidance

Health and Safety in Construction (HSG150 - rev)

A Guide to Managing Health and Safety in Construction (ISBN 0 7176 0755 0)

Health and Safety in Excavations - Be Safe and Shore (HSG185)

Safe Work in Confined Spaces - Regulations, Approved Code of Practice and Guidance (L101)

Five Steps to Risk Assessment (INDG 163)

Excavators Used as Cranes - Guidance Note PM42

### 4.10.3 Other Guidance

CPA Guidance                      Safety in Shoring - The Proprietary Shoring and Piling Equipment Manual

CPA (STIG) Guidance           STIG 0201 : Selection of Proprietary Shoring Equipment

CPA (STIG) Guidance           TIN 203 : The Use of Restraining Chains to Support Shoring Equipment

CPA (STIG) Guidance           TIN 204 : The Correct Use of Lifting and Other Attachment Points for Shoring Equipment

CPA Safety Guidance           Risk Assessment (SG 003)

CPA Guide Ref No. SG001(3)    Guidance on Lifting Operations in Construction When Using Excavators

CIRIA Report R166                CDM Regulations - Work Sector Guidance for Designers

CIRIA Report 97                    Trenching Practice

CIRIA Special Publication 131    Crane Stability on Site

CIRIA Special Publication 95     The Design and Construction of Sheet-Piled Cofferdams

### 4.10.4 British and European Standards

BS 6031 : 2009 Code of Practice for Earthworks

BS EN 996 : 1996 Piling Equipment. Safety Requirements

BS EN 1997-1 : 2004 Code of Practice for Foundations

BS 5228-1: 2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites : Noise

BS 5228-2: 2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites : Vibration

## 5. Sling Warning

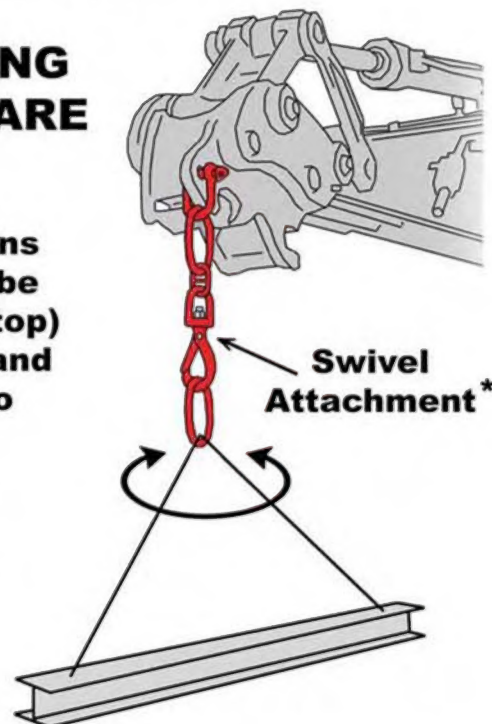


# WARNING

## IF YOU ARE USING A SLING ON AN EXCAVATOR BEWARE THE FOLLOWING :-

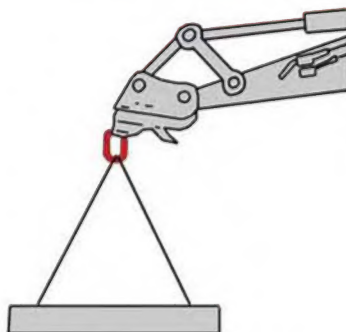
It is very important that a means of allowing the sling to swivel be introduced above the master (top) ring. This will allow the sling, and in particular the master ring, to turn and align with the load.

**WITHOUT A SWIVEL ARRANGEMENT THE LOAD MAY SEVERELY TWIST THE MASTER RING RESULTING IN **DAMAGE** OR **FAILURE**.**

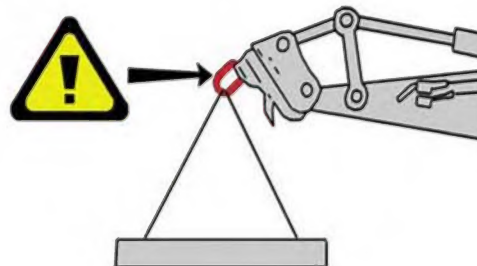


All lifting accessories attached to the excavator lifting point must hang freely and be free to move at all times.

**TILTING THE HEAD OF THE DIPPER ARM / QUICK HITCH UPWARDS MAY PREVENT FREEDOM OF MOVEMENT AND SO **TWIST**, **DAMAGE** OR **FAIL** THE LIFTING EQUIPMENT.**



**CORRECT**

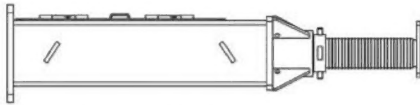


**INCORRECT**

\* Mabey Hire offer an 8 tonne single leg swivel attachment as part of their hire product range.  
Code : SSBA-007, Bearing to bearing length : 600mm, Weight : 11kg. Please see User Guide for details.



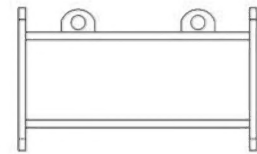
## 6. Identification of Components



**Hydraulic Unit**  
(2000-2600mm long)  
Code: SBS-100  
Weight: 800 kg

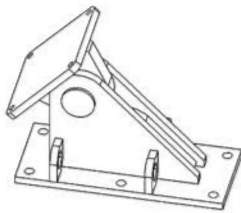


**Mechanical Unit**  
(2000-3000mm long)  
Code: SBS-200  
Weight: 650 kg

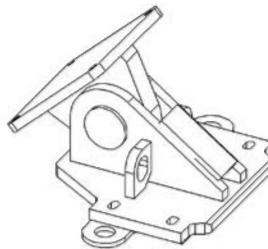


**Extension Units**

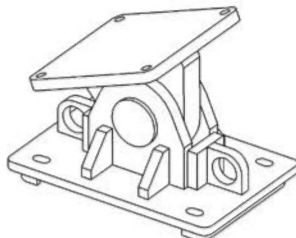
Length (mm)	Code	Weight (kg)
500	SBS-028	258
700	SBS-029	296
1000	SBS-007	360
2000	SBS-008	550
4000	SBS-009	925
8000	SBS-010	1700
12000	SBS-011	2460



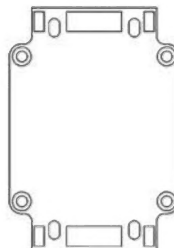
**Swivel Plate Assembly**  
Code: SBS-014  
Size: 700 x 300 x 460  
Weight: 170 kg



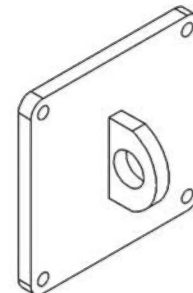
**Super Shaftbrace Knee  
Brace Connector Assembly**  
Code: SBS-021  
Size: 465 x 485 x 305  
Weight: 136 kg



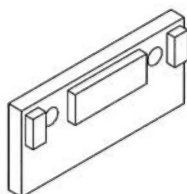
**Super Shaftbrace  
Connector Bracket  
Assembly - Raking Prop**  
Code: SBS-025  
Size: 520 x 350 x 295  
Weight: 115 kg



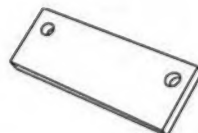
**Connector Plate to 356x368  
U.C. Super Shaftbrace**  
Code: SBS-019  
Size: 485 x 340 x 20  
Weight: 26 kg



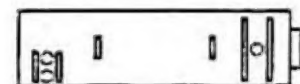
**Pulling Bracket**  
Code: SBS-015  
Size: 340 x 340 x 25  
Weight: 25 kg



**Clamp Plate**  
Code: MBSP-009  
Size: 250 x 115 x 20  
Weight: 6 kg

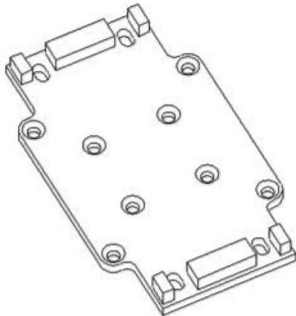


**Super Shaftbrace  
Raking Prop - Clamp Plate**  
Code: SBS-030  
Size: 310 x 105 x 20  
Weight: 5 kg

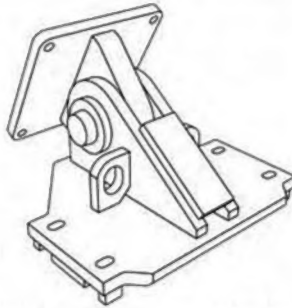


**Pre-Loading / Unloading  
Ram (880-1500mm lg)**  
Code: SBS-099  
Weight: 200 kg

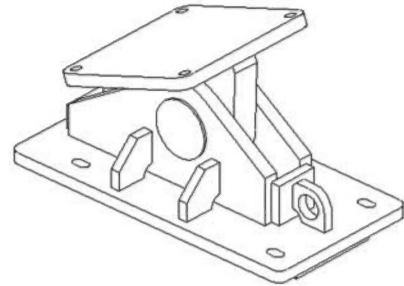
## 6. Identification of Components Cont'd



**Connector Plate to  
Supershaft Plus**  
Code: SBS-031  
Size: 570 x 340 x 20  
Weight: 29 kg



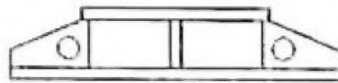
**Supershaft Plus Knee Brace  
Connector Assembly**  
Code: SBS-032  
Size: 570 x 465 x 245  
Weight: 145 kg



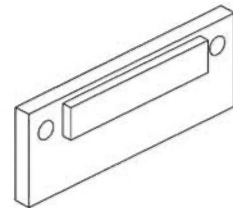
**Supershaft Plus Raking  
Prop Connector Assembly**  
Code: SBS-033  
Size: 680 x 350 x 330  
Weight: 155 kg



**Lifting Chains**  
13mm 4 leg chain sling  
Code: JCBP-037  
Weight: 84 kg



**125mm Adaptor**  
Code: SBS-026  
Size: 600 x 600 x 125  
Weight: 87 kg



**Supershaft Plus Raking  
Prop Clamp Plate Assembly**  
Code: SBS-033/SA2  
Size: 300 x 115 x 20  
Weight: 6 kg

## 7. Stacking and Handling

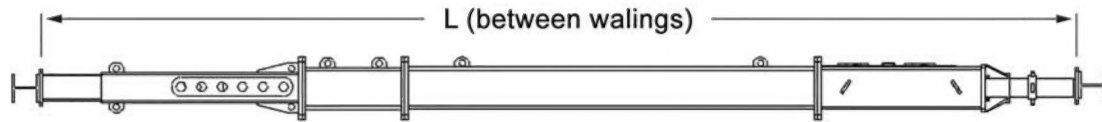
- Suitable firm level dry areas should be made available on site for stacking and pre-assembly work.
- Suitable lifting equipment of adequate lifting capacity should be provided for off-loading, pre-assembly work, installation and dismantling.
- Slings should always be carried out by suitably experienced and competent personnel.
- Weights of components are given above.
- Weights of complete assembled struts are given on page 7.
- Return pre-assembled struts as supplied from Mabey Hire's depot.
- Always stack struts in single layers wherever possible.

## 8. Transportation

- Ensure the mechanical unit is fully retracted with the pin, locking collar and bolt tightly secured.
- Ensure the hydraulic unit is fully retracted with the locking pin in position and secured.
- Ensure all equipment is loaded to the satisfaction of the lorry driver and securely chained / strapped to the lorry.

## 9. Table of Standard Strut Assemblies

(Non standard strut assemblies may be available on request)



Code No.	Strut Configuration for Standard Struts			Overall Length (L) (mm)	Weight (kg)
		Ext. Length (mm)			
SBSTRUT-01*	125mm Adaptor	-	Hydraulic Unit	2165 - 2765	963
SBSTRUT-02*	125mm Adaptor	1000	Hydraulic Unit	3165 - 3765	1323
SBSTRUT-03*	Mechanical Unit	-	Hydraulic Unit	4040 - 5640	1530
SBSTRUT-04*	Mechanical Unit	1000	Hydraulic Unit	5040 - 6640	1890
SBSTRUT-05*	Mechanical Unit	2000	Hydraulic Unit	6040 - 7640	2080
SBSTRUT-06*	Mechanical Unit	1000+2000	Hydraulic Unit	7040 - 8640	2440
SBSTRUT-07*	Mechanical Unit	4000	Hydraulic Unit	8040 - 9640	2450
SBSTRUT-08*	Mechanical Unit	4000+1000	Hydraulic Unit	9040 - 10640	2810
SBSTRUT-09*	Mechanical Unit	4000+2000	Hydraulic Unit	10040 - 11640	3000
SBSTRUT-10*	Mechanical Unit	1000+4000+2000	Hydraulic Unit	11040 - 12640	3360
SBSTRUT-11*	Mechanical Unit	8000	Hydraulic Unit	12040 - 13640	3230
SBSTRUT-12*	Mechanical Unit	8000+1000	Hydraulic Unit	13040 - 14640	3590
SBSTRUT-13*	Mechanical Unit	8000+2000	Hydraulic Unit	14040 - 15640	3780
SBSTRUT-14*	Mechanical Unit	1000+8000+2000	Hydraulic Unit	15040 - 16640	4140
SBSTRUT-15*	Mechanical Unit	4000+8000	Hydraulic Unit	16040 - 17640	4150
SBSTRUT-16*	Mechanical Unit	4000+8000+1000	Hydraulic Unit	17040 - 18640	4510
SBSTRUT-17*	Mechanical Unit	4000+8000+2000	Hydraulic Unit	18040 - 19640	4700

Struts should always be assembled as indicated in the table above.

- Note: Use suffix C for connection between Super Shaftbrace rails
- Use suffix K for knee brace connection between Super Shaftbrace rails.
- Use suffix D for connection between Supershaft Plus rails
- Use suffix DK for knee brace connection between Supershaft Plus rails.



Title	Super Bracing Strut	Issue	8	Date	July 2012
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## 10. Connections

Mechanical Unit to Extension Extension to Extension Hydraulic Unit to 125mm Adaptor Hydraulic Unit to Mechanical Unit Hydraulic Unit to Extension.	}	12 No. M24 x 100 long galv. Gr 8.8 bolts c/w washers (SBS-017)
Connector Plate to Mechanical Unit Connector Plate to Hydraulic Unit Connector Plate to 125mm Adaptor	}	4 No. M20 x 70 long self colour Gr 10.9 Countersunk socket head screws c/w nuts (SBS-020)
Pulling Bracket to Mechanical Unit Pulling Bracket to Hydraulic Unit Knee Brace Connector to Mechanical Unit Knee Brace Connector to Hydraulic Unit Swivel Plate to Mechanical Unit Swivel Plate to Hydraulic Unit Knee Brace Connector to 125mm Adaptor Raking Prop Connector Bracket to Mechanical Unit Raking Prop Connector Bracket to Hydraulic Unit	}	4 No. M20 x 75 long galv. Gr 8.8 bolts (SHBP-M20x75)

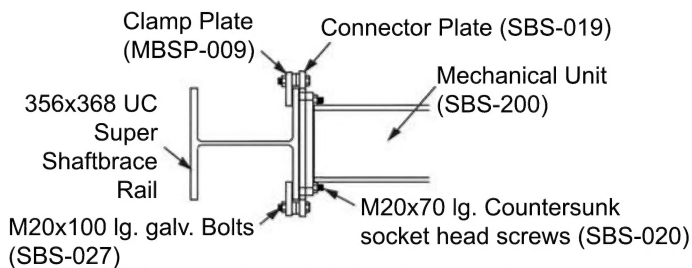
### 10.1 Super Shaftbrace Connections Only

Connector Plate to Clamp Plate Knee Brace Connector to Clamp Plate Raking Prop Connector Bracket to Clamp Plate	}	2 No. M20 x 100 long galv. Gr 8.8 bolts per clamp plate (SBS-027)
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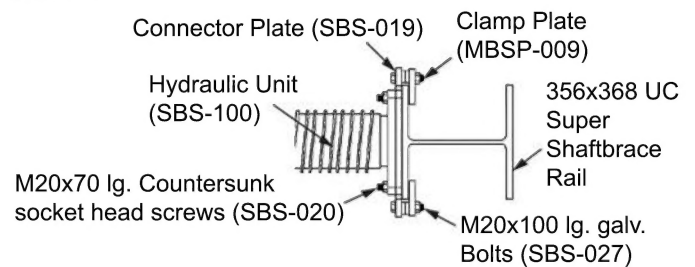
### 10.2 Supershaft Plus Connections Only

Connector Plate to Clamp Plate Knee Brace Connector to Clamp Plate Raking Prop Connector Bracket to Clamp Plate	}	2 No. M20 x 110 long galv. Gr 8.8 bolts per clamp plate (SSP-M20x110BOLT)
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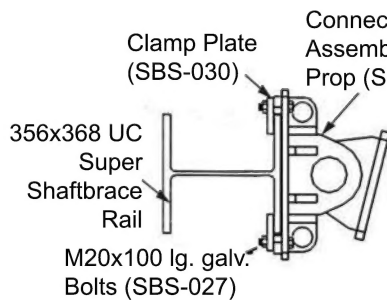
### 10.3 Connection details to 356 x 368 U.C. Super Shaftbrace Waler Rail



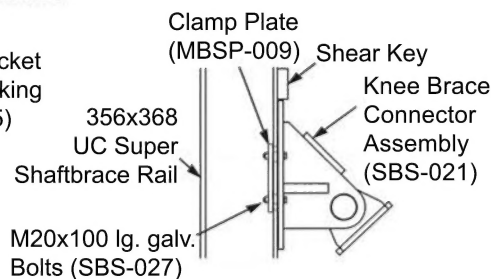
**Mechanical Unit Arrangement**



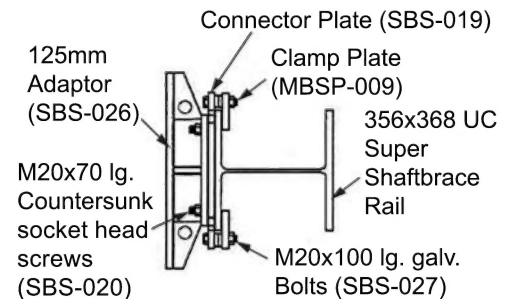
**Hydraulic Unit Arrangement**



**Raking Prop Connector Arrangement**



**Knee Brace Connector Bracket Arrangement (Plan View)**

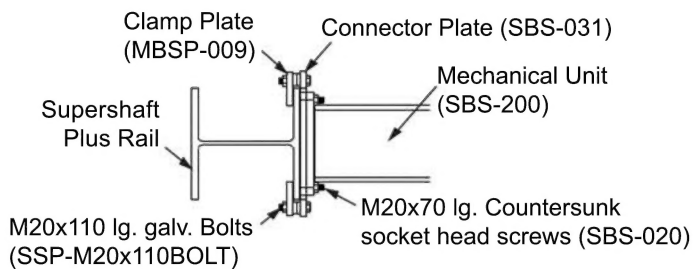


**125mm Adaptor Arrangement**

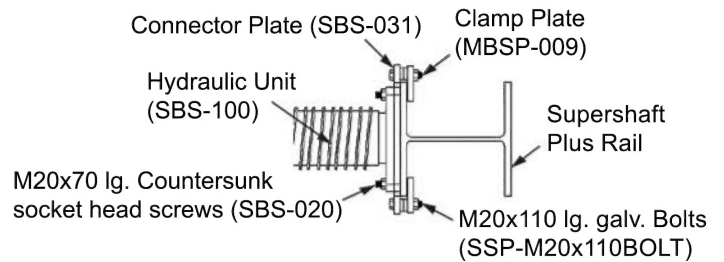
Note: (i) Always fit 2 No. clamp plates (one top and one bottom) at each waling connection.  
(ii) If a non standard strut / waling connection detail is being used, consult Mabey Hire Engineering Department for advice.



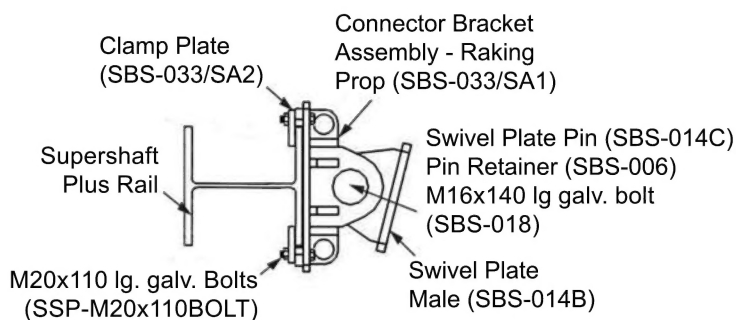
## 10.4 Connection details to 500 x 460 fabricated U.C. Supershaft Plus Waler Rail



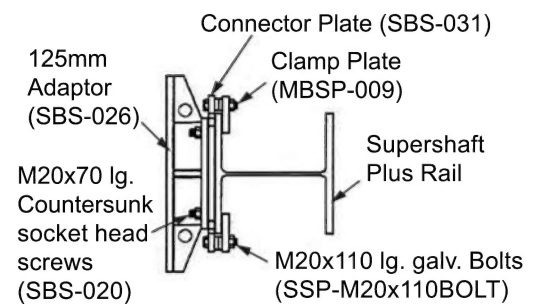
**Mechanical Unit Arrangement**



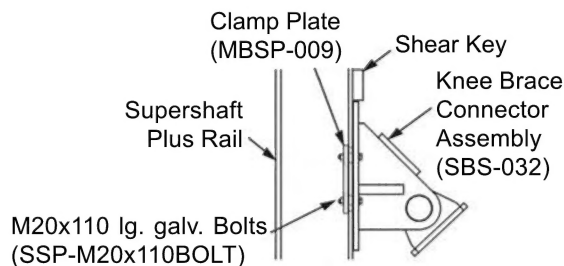
**Hydraulic Unit Arrangement**



**Raking Prop Connector Arrangement**



**125mm Adaptor Arrangement**



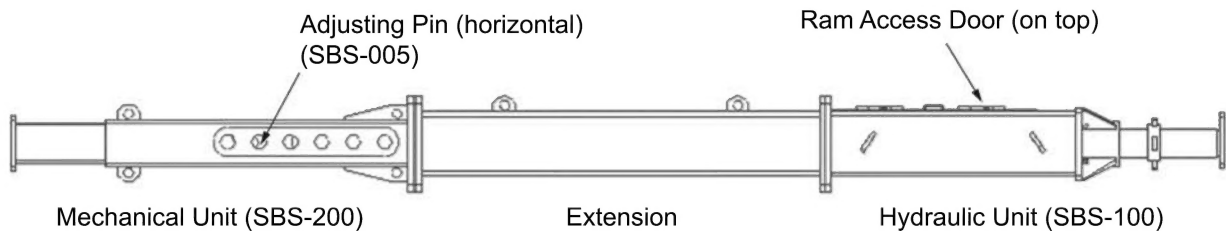
**Knee Brace Connector  
Bracket Arrangement  
(Plan View)**

- Note: (i) Always fit 2 No. clamp plates (one top and one bottom ) at each waling connection.  
(ii) If a non standard strut / waling connection detail is being used, consult Mabey Hire Engineering Department for advice.

## 11. Assembly

The strut is assembled to the correct length range where possible prior to delivery - with the clamp plates supplied separately. If the strut has to be either finally assembled or altered to another size range on site, always use 12 No. M24 x 100 long Galv. Gr. 8.8 bolts c/w washers (SBS-017) for the main flange connections.

**Note:** When the strut is horizontal the adjusting pin on the Mechanical Unit should be horizontal and the ram access door on the Hydraulic Unit should be on top.



## 12. Strut Adjustment

The strut incorporates two means of adjustment:-

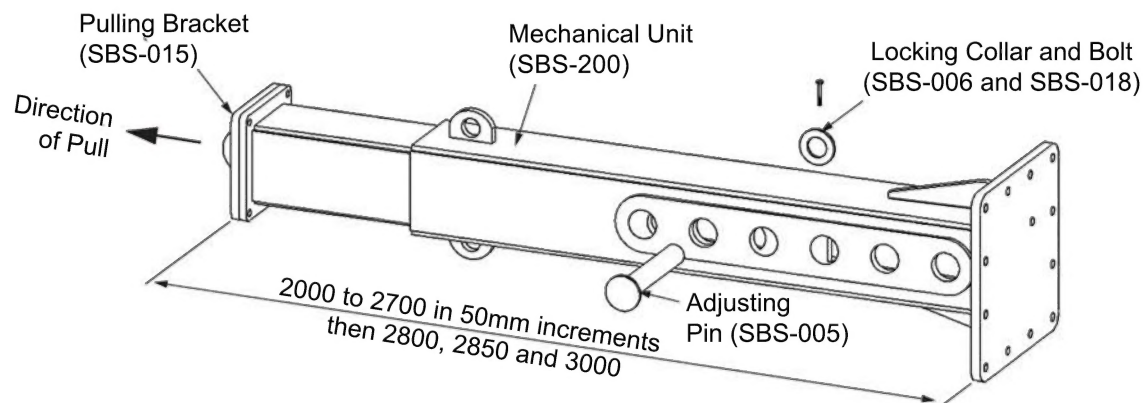
### 12.1 The Mechanical Unit

The mechanical unit adjusts from 2000mm to 3000mm overall in increments of 50mm between 2000 to 2700mm followed by 2800, 2850 and 3000mm.

To adjust the mechanical unit, remove the bolt and locking collar from the adjusting pin and remove the pin. Connect the pulling bracket onto the inner section end plate and slide out the inner to the required length using a short chain connection onto the excavator arm. Replace the adjusting pin through one of the holes that are aligned between the outer and inner sections and secure in position with the locking collar and bolt. Remove the pulling bracket.

**BEFORE PROCEEDING DOUBLE CHECK THAT:-**

- The mechanical unit is correctly set to the length required.
- The adjusting pin is correctly replaced and secured with the locking collar and bolt.





## 12.2 The Hydraulic Unit - Extension

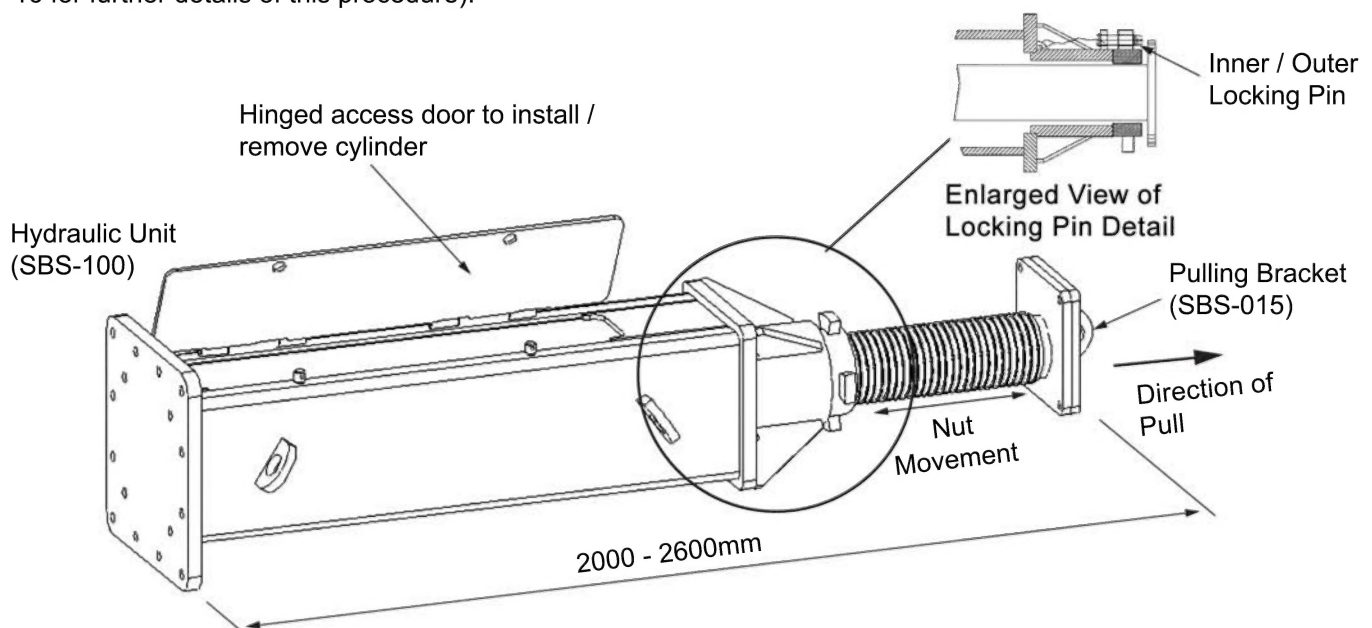
The hydraulic unit adjusts from 2000 to 2600mm overall. To adjust the hydraulic unit remove the inner / outer locking pin, connect the pulling bracket onto the screwed inner end plate and slide out the inner to the required length using a short chain connection onto the the excavator arm. When the unit is set to the required length, spin the nut along the thread until it makes contact with the end of the outer section.

**BEFORE PROCEEDING DOUBLE CHECK THAT:-**

- The hydraulic unit is correctly set to the length required.

## 12.3 The Hydraulic Unit - Preloading

By fitting the hydraulic cylinder into the hydraulic unit during installation, the cylinder can be pressurized when the strut is in its final position thus preloading the waling. The nut can then be spun along the thread until it makes contact with the end of the outer section and the cylinder retracted and removed from the strut (refer to section 16 for further details of this procedure).



## 13. Installation

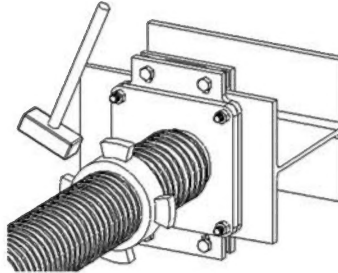
- Ensure walings have been set to the required dimensions and pressurized if necessary before installing the struts.
- Measure the dimension between the walings.
- Ensure operatives have adequate access to the strut in its final position.
- Extend the Mechanical and Hydraulic End units as equally as possible (see section 12 for details) to achieve the required strut length.
- Fit the top clamp plates leaving the bolts slightly loose.
- Sling and lift the strut horizontally into position so that the top clamp plates are correctly located over the flanges of the walings. Check that the strut is square to the walings and that the strut and waling centrelines are in line.
- Adjust the hydraulic unit screw so that the connector plates are tight against the walings.
- Fit the bottom clamp plates.
- Tighten all the bolts to the clamp plates.
- Remove the lifting chains.

## 14. Precautions During Use

- Check that all bolted connections remain tight.
- Avoid striking the struts or laterally loading them by storing materials on them or by hanging or propping from them.
- Protect the screw thread from concrete spillage etc.. by wrapping in polythene.

## 15. Removal

- Ensure operatives have adequate access to the strut.
- Support the struts from below, or sling with a suitable crane before attempting to release the hydraulic screw unit.
- The hydraulic unit incorporates a mechanical screw inner which is designed to retract under conditions of no or low loading e.g. as the strut becomes redundant after backfilling the excavation. To free the nut it may be necessary to strike the blocks of the nut with a 7lb sledge hammer as shown below.

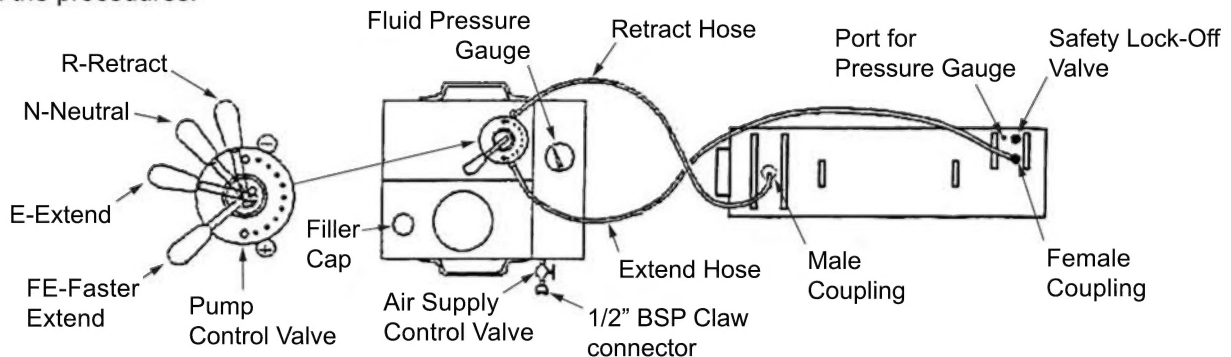


- If however the strut is still sustaining significant loads, a hydraulic cylinder can be placed into the body of the unit, pressurised just enough to free the nut which can then be spun along the thread out of the way and the hydraulic cylinder slowly retracted to retract the screw inner. (Refer to section 16 for further details of this procedure).
- Once the strut is released, remove the lower clamp plates only and lift the strut clear of the excavation.

## 16. Mechanical Pump (SSBA-003) Details, and use of Hydraulic Ram (SBS-099)

### 16.1 Introduction

It is advisable before commencing installation to read the notes below to become familiar with the procedures involved. The diagrams below show the pump control, gauge, hose connections and safety lock off valve referred to in the procedures.



### 16.2 Preliminaries

- Check there is sufficient of the Mabey Hire shoring fluid in the tank. Only Mabey Hire shoring fluid can be used.
- Set the pump control valve to 'Neutral'
- Connect the pump to a suitable air supply (100psi at 14 cu ft/min) and open the air supply control valve on the pump.
- Purge the hoses of air. To do this connect the hoses together and run the pump for a few seconds with the control valve set to 'extend'. When satisfied that any air has been expelled, set the pump control valve to neutral.
- At no time must the pump be left operating whilst unattended.

### 16.3 Mabey Hire Shoring Fluid

The pump is normally supplied with a full tank of premixed fluid. If the fluid is separately supplied 'neat' in 5 litre orange coloured containers, it should be poured into the pump and cold clean water added according to the prevailing weather conditions (see table to the right). Protective gloves should always be worn when handling shoring fluid.

Note: A shoring fluid safety data sheet is available on request from Mabey Hire Ltd.

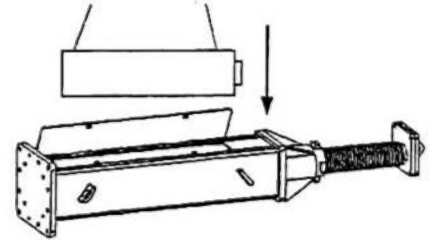
Temp Range (Degrees C)	Shoring Fluid (litres)	Water (litres)
Above 0	5	20
-6 to 0	10	20
-10 to -7	15	15
-10 and below	Neat Only	-



## 16.4 Procedure for pre-loading of the Hydraulic Unit (SBS-100)

If the strut is required to be pre-loaded during installation, the following procedure should be carried out after the strut and frames are in their final position.

- Ensure the Hydraulic Unit (SBS-100) is installed with its access door uppermost.
- Open the access door and lift the Hydraulic Ram (SBS-099) into the Hydraulic Unit using the lifting lugs on the ram. Ensure the piston rod of the ram is towards the screw of the Hydraulic Unit. Also ensure that the ram sits onto the supports in the Hydraulic Unit and that the piston rod is in line with the end of the screw bar.
- Set the pump control valve to 'Neutral' and ensure the air supply valve is open.
- Connect the pump hoses to the Ram.
- Open the safety lock-off valve on the Ram (by rotating anti-clockwise).
- Set the pump control valve to 'retract' (Note: This will actually extend the ram).
- Watch the ram extend until it just touches the end of the screw bar.
- Allow the pressure to build up to the level as indicated by Mabey Hire Engineering Department.
- Shut down the pump by closing off the air supply valve. Check that the hydraulic pressure is being maintained on the ram pressure gauge (NOTE: Do not move the pump control valve to 'neutral' at this point as this will simply release the pressure).
- Close the safety lock off valve (by rotating clockwise).
- Spin the nut along the screw thread and tap tight against the collar on the end of the Hydraulic Unit.
- Set the pump control valve to 'neutral' and open the air supply valve.
- Slowly open the safety lock off valve to release the hydraulic fluid pressure and allow fluid to flow back through the pump.
- Set the pump control valve to 'extend' (Note: This will actually retract the ram).
- Allow the piston to fully retract into the ram.
- On completion of retraction close off the air supply valve and set the pump control valve to 'neutral'.
- Disconnect the pump hoses from the ram and lift the ram from the Hydraulic Unit.
- Close the Hydraulic Unit access door.



## 16.5 Procedure for Removal of the Strut

If the strut is sustaining significant loads and the nut cannot be moved, the following procedure should be carried out.

- Repeat the first 7 steps under Section 16.4 above.
- Allow the pressure to build up until the nut on the Hydraulic Unit can be released.
- Spin the nut along the screw thread away from the Hydraulic Unit collar.
- Move the pump control valve to 'neutral'. This will release the pressure and allow the ram to retract with the screw bar following.
- When the load in the screw bar becomes negligible, the ram will stop retracting.
- Set the pump control valve to 'extend' (Note: This will actually retract the ram).
- Allow the piston to fully retract into the ram.
- On completion of retraction close off the air supply valve and set the pump control valve to 'neutral'.
- Disconnect the pump hoses from the ram and lift the ram from the Hydraulic Unit.

## 17. Maintenance

Adjustment of the Hydraulic Unit Screw is considerably eased if the thread is kept well greased / oiled.

## 18. General

Since our policy is one of continual improvement, components may vary in detail from the descriptions given in this publication.

## User Information Appendix A : Provision of a Mabey Hire Site Demonstrator

Mabey Hire can, subject to availability, offer the services of a Site Demonstrator. However, the Customer should note the following :-

### A1. The Customers Responsibilities

A safe system of work remains the Customers responsibility at all times. It is his responsibility to prepare for, organise and direct the operation including :-

A1.1 Site induction for the demonstrator.

A1.2 Preparation of a method statement.

A1.3 A risk assessment.

A1.4 Selection of lifting equipment and any other equipment required to undertake the work.

A1.5 Positioning of the crane or lifting appliance.

A1.6 Banking the crane.

A1.7 Slings the components.

A1.8 Assembling the components and installing them.

### A2. Activities which the Mabey Hire Demonstrator is authorised to carry out

Mabey Hire Demonstrator is authorised to :-

A2.1 Assist in identification of Mabey Hire components.

A2.2 Explain how they fasten together.

A2.3 Point out slinging points and special methods of lifting as noted in the user information.

A2.4 Demonstrate how to attach hoses and use pumps to extend/retract hydraulic braces.

A2.5 Draw attention to the content of the user information.

A2.6 Clarify queries with Mabey Hire scheme drawings.

The Demonstrator is NOT AUTHORISED to 'take over' or direct the installation.

To : Mabey Hire Limited  
[Address]

From \_\_\_\_\_

Site \_\_\_\_\_

Tel.No. \_\_\_\_\_ Fax No. \_\_\_\_\_

Tel.No. \_\_\_\_\_ Fax No. \_\_\_\_\_

### Provision of a Mabey Hire Demonstrator on site

We confirm receipt of your User Information Appendix A and that we would like to request the services of your Demonstrator on \_\_\_\_\_ date(s).

Signed \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_